Art. VI.—*Aneurism of the Aorta—communication between the Trachea and Œsophagus.* By John Neill, M. D.

The subject of this case was a gentleman 59 years of age, who had been known to labour under aneurism of the curve of the aorta since Jan. 1836, at which time he had an attack of acute disease, the symptoms and circumstances connected with which will be subsequently detailed.

July 18, 1843. *Autopsy*, 31 hours after death.—*General appearances.* Slight frame, stature below medium height, not much emaciation—chest rather narrow—upon percussion, dulness over the præcordial region, which extended beyond the right side of the sternum and as low as the sixth rib. Upon raising the sternum and cartilages of the ribs, a large *tumour* was found adhering to an erosion, involving three-fourths of the width of the sternum at the junction of the first and second bones, and also, the extremity of the third rib of the right side. Its shape was somewhat like that of a heart, with its apex downwards. The diameter of its base was seven inches, and the altitude nine inches. Occupying the upper part of the thorax it pushed the heart entirely below the sixth rib, and its posterior portion pressed upon the trachea just above its bifurcation. On being cut into, it proved to be an enormous aneurismal sac, including the whole of the curve of the aorta, commencing just beyond the semilunar valves. The sac consisted of three lobular portions, all entering into the common large cavity. The right superior lobe was that first observed imbedded into the eroded sternum and right third rib. The outer circumference of this was as large as that of a common sized orange. The part in contact with the sternum and rib was filled with a solid coagulum, which was laid bare by the coat of the sac being removed with the bones of the chest, to which they adhered like periosteum. The inferior lobe occupied the ordinary position of the heart, and was sufficiently large to admit the doubled fist of a man. It was partly occupied by a clotty, grumous, dark-brown fluid.

The left superior lobe was situated a little lower than the right; was very capacious: contained much fluid blood, and a coagulum at its posterior portion resting nearly opposite the bifurcation of the trachea.

There was no apparent rupture of the coats of this enormous common sac, formed by the dilated artery, which was sufficiently large to hold at least a quart. There was no particular dilatation of the innominata, subclavian, or carotid. The interior coat of the thoracic aorta below the sac was covered with scaly ossifications upon which the knife grated. The semilunar valves of the aorta were slightly thickened.

Aperture making a communication between œsophagus and trachea.—The pressure of the sac upon the windpipe had caused a partial absorption of three of its cartilaginous rings, the extremities of which presented calcareous deposits. Where the trachea was thus pressed backward upon the œsophagus

an aperture existed between the two natural passages one inch above the bronchi, sufficiently large to admit a common-sized goose-quill. A small hard septum separated this aperture from a little sinus which remained imperforate. The trachea exhibited marks of extensive inflammation in the parts which had been subjected to pressure, which diseased appearance continued downwards into the bronchial tubes. The interior of the œsophagus opposite the tumour and adjacent to the aperture was red, and its mucous membrane softened.

The heart.—Considerable difficulty was experienced in removing the pericardium, which was strongly adherent, the result of old inflammation. The heart was rather smaller than usual and its walls of proper thickness. The right auricle contained a dense fibrinous clot, about the size of a small hen's egg, not of recent formation. This clot rested upon the tricuspid valve, which it partially closed. This valve, together with the mitral, were thickened and contained fatty depositions. The cavity of the left ventricle was small.

Lungs.—The summits of both lungs were attached to the walls of the thorax by old adhesions, particularly that of the right side. At base neither were crepitant; but both were so solid as to resemble recent hepatization. The pleura pulmonalis of the left upper lobe presented patches indicative of former inflammation.

Immediately upon opening the cavity of the thorax I perceived the smell of assafœtida; a mixture containing a small portion of which had been given at intervals for two or three days previous to death.

The perforation in the gullet explains the manner in which this article had entered the lungs, from which it must have transfused itself through the tissues into the pleural cavities. A peculiar whiteness of the sputa whilst taking the mixture, consisting of lactis assafœtid., lactis ammon., &c. was also occasioned by the entrance of these into the windpipe.

For several days previous to death, all attempts to swallow fluids even in the smallest quantities were instantly followed by a violent cough and a strangling sensation.

The following note was made by the attending physician, Dr. G. Emerson, during the early stages of the disease, which proved fatal after the lapse of nearly seven years, under the circumstance disclosed by the post-mortem examination.

"J. G., merchant, aged about 53 years, of small stature, rather delicate form and sanguineous temperament, accustomed to an active, though not laborious life, first came to me for advice in July 1835, when he complained of pain in the left breast, and troublesome dry cough. Blood-letting, with other antiphlogistic treatment, was followed by relief. About the first of the following December he again called for my advice, complaining of pain in the region of the heart, with a quick hard pulse, and troublesome cough. Bleeding, rigid dieting, digitalis and pectorals, were followed by a

gradual abatement of the symptoms. Early in the month of January 1836, Mr. G. felt able to go from Philadelphia to New York on business. He remained at the latter place about a week, during most of which time the weather was very wet and inclement. The last day or two he was very much exposed. On his return to Philadelphia, he sent for me on the 15th of January, complaining of severe pain in the pharynx and upper parts of the œsophagus, with great difficulty in swallowing. His pulse was active and his cough very harassing, resisting all attempts to relieve it by means of the ordinary anodynes and pectorals. Bleeding from the arm, followed by leeches to the throat and upper part of the chest, with other antiphlogistic measures, were, in a few days, followed by an abatement of the pharyngitis. But this was immediately succeeded by an attack of intense pain in the region of the heart, with deep, dry, racking cough, which, as on the former occasion, nothing seemed to check. The little mucous forced up in coughing was sometimes streaked with blood. He complained of severe pain in the left side of the head, face and cranium. The bleeding and other antiphlogistic measures were persevered in and a blister applied over the left side of the chest. After four or five days, the violence of these symptoms abated, but the pain now shifted to the right side of the sternum, where in four or five days more a prominence was visible having a strong pulsation. This prominence was at the junction of the third right rib with the sternum, and had its pain increased by external pressure. The pulse was from 96 to 100 per minute, not irregular or intermittent, and without any thing like a thrill. The cough was unattended with expectoration, and was relieved by lying on the back a little inclined to the right side. Treatment, antiphlogistic, with infusion of digitalis. On the 4th of February the cough was only occasionally troublesome at night, the pulse about 96 per minute and less forcible. The pain in the pulsating tumour was relieved by leeches applied immediately over the part.

The patient was apprised of the nature of his disease, and advised to avoid any bodily exertion, remain as quiet as possible, and submit to every measure calculated to diminish the volume of blood and curb the force of its circulation. To this course he submitted with great patience and perseverance for several months, when he again began to walk out and attend to his affairs. From this period till his death, he had occasional attacks of pain in the region of the aneurism, attended with violent cough and other symptoms of aortitis. These symptoms, though sometimes very obstinate, always yielded to repeated bleedings and leechings, with repose and rigid dieting.

Exploration of the chest showed a dulness on percussion and loss of respiratory sound in the region of the chest extending from the right side of sternum about the union of the third and fourth ribs, to the region of the heart, with violent pulsation through every part of the chest, indicating the existence of a very large aneurismal sac. The prominence at first observed,

the beating of which was visible to the eye, had abated during the first months of treatment, and gave rise, with some, to the supposition that the aneurism had undergone a spontaneous cure. It was, however, but too evident that the dilatation was only arrested in its progress in one direction, whilst it proceeded slowly in others where it met with less resistance.

About the month of March last (1843), the cough which had long been very troublesome, became still more violent, and there was some complaint of a difficulty of swallowing. At night, on first going to bed the cough was always exceedingly violent and harassing. A position on the left side with the face inclining a little downwards, seemed to afford most relief. Little apparent advantage was derived from anodynes and antispasmodics. These symptoms increased, and in the months of May and June required very active antiphlogistic means to relieve them. On the 5th of July he laboured under a severe catarrhal affection with great discharge from the schneiderian membrane and subsequent free expectoration of mucus, with pains in the head and chest, all of which were evidently the result of an attack of the influenza, then very prevalent. But by far the most serious symptoms were a sense of choaking, and difficulty of swallowing fluids even in very small quantities without immediately inducing a violent convulsive cough. The breathing was at the same time attended with a wheezing sound indicative of obstruction in the trachea. The feet and ankles were somewhat tumid. But the pulse, though from 90 to 100 per minute, was regular, and never then or at any previous time, attended with that peculiar thrill which is so often associated with aneurism. About three days previous to death, a white emulsion had been given in small quanities, containing some milk of gum ammonia and milk of assafœtida. The expectoration brought up by coughing was, during this time, observed to have a peculiar milky whiteness. The flow of urine also became so scanty as to excite much anxiety on the part of the patient. Both the whiteness of the expectoration and the reduction of the urinary secretion, were evidently owing to the passage of the mixture and other fluids into the lungs instead of the stomach. On the night of the 16th and 17th of July, there was a continuation of great oppression in breathing, with a most harassing cough, somewhat relieved by lying upon the left side with the face inclined downward. On the morning of the 17th, after walking about the chamber and putting on some of his clothes, his breathing became suddenly very much oppressed, he reclined backwards upon a sofa, became convulsed and died in a very few minutes."